



Center for Magnetic Recording Research  
**SEMINAR**

**Thursday, March 25, 2010  
2:00 PM – CMRR Auditorium**

**Minimum Distance Analysis of a Certain Class of  
2-Dimensional Intersymbol-Interference (ISI) Channels\***

**Prof. Wai Ho Mow**  
Visiting Scholar,  
Hong Kong University of Science and Technology

**Abstract:**

We perform the minimum distance analysis of a class of 2-D ISI channels applicable to multitrack magnetic recording systems. For a wide class of ISI responses, the closed-form expression of the exact minimum distance are derived. The fundamental analytical technique is to transform the channel into an equivalent minimum phase representation. Our results improve upon the prior state-of-the-art results by Soljanin and Georgiades (IT-98).

**Bio:**

Wai Ho MOW received his PhD degree in Information Engineering from the Chinese University of Hong Kong. He was a visiting research fellow at the University of Waterloo in Canada, the Munich University of Technology (TUM) in Germany, and the Kyoto University in Japan in 1995, 1996 and early 2000, respectively. From 1997 to 1999, he was an assistant professor at the Nanyang Technological University, Singapore. He joined the Hong Kong University of Science and Technology since 2000 and is currently spending his sabbatical at the Center for Magnetic Recording Research, UC San Diego. He was the recipient of the Croucher Research Fellowship (HK), the Humboldt Research Fellowship (Germany), the Telecommunications Advancement Research Fellowship (Japan), the Tan Chin Tuan Academic Exchange Fellowship (Singapore), the Wong Kuan Cheng Education Foundation Academic Exchange Award (China), the Foreign Expert Bureau Fellowship (China) and the Royal Academy of Engineering Award for Short Research Exchanges with China and India (UK). His research interests are in the areas of wireless communications, coding and information theory. He pioneered the lattice approach to signal detection problems and unified all known constructions of perfect roots-of-unity sequences (widely used as CAZAC preambles and radar signals). Since Jun 2002, he has been the principal investigator of over 10 funded research projects. He has published 1 book, and co-authored over 20 filed patent applications and over 100 technical publications, among which he is the sole author of over 40. He co-authored a paper that received the ISITA2002 Paper Award for Young Researchers and supervised one student who won the first prize in the IEEE HK Section Postgraduate Paper Contest. He was the chair of the Hong Kong Chapter of the IEEE Information Theory Society in 2005. He was a technical program co-chair of 5 conferences and served the technical program committees of many conferences such as Globecom, ICC, ISITA, ITW, VTC and WCNC. He was the guest (associate) editor for 3 special issues of the IEICE Transactions on Fundamentals. He was a member of the Radio Spectrum Advisory Committee, Office of the Telecommunications Authority, the Hong Kong S.A.R. Government from 2003 to 2008.

\*Joint work with Fredrik Rusek (Lund U.), Edward Au (Huawei Technologies), and John B. Anderson (Lund U.)

If you have any questions or, time permitting, would like to meet with the speaker,  
contact him at [eewhmow@ust.hk](mailto:eewhmow@ust.hk) / Phone 858-534-6214).

Please observe the “No Food or Drink in the Auditorium” policy.